AP Calc – Problem Set # 3– More Advanced Derivatives

1. Product and Quotient Rule – **Day 1**

1) Use the product rule to find  for 

2) Use the quotient rule to find for 

1. Chain Rule and Derivatives of Trig Functions  **- Day 2 & 3**

Find . You do not need to simplify beyond combining like terms and multiplying constants.

**Day 2 -** 3) 

**Day 3 -** 4) 

**Day 3 -** 5) Write the equation for the line tangent to  at 

**Day 2 -** 6) Derive the quotient rule by using the product and chain rules!

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| Trig Functions and Their Derivatives – Day 4 A weight is on the end of a spring moving, bouncing up and down for eternity. | |
| Equations | Table(s) |
|  | |  |  | | --- | --- | |  | s(t) | | 0 |  | |  |  | |  |  | |  |  | |  |  |  |  |  | | --- | --- | |  | v(t) | | 0 |  | |  |  | |  |  | |  |  | |  |  |      |  |  | | --- | --- | |  | a(t) | | 0 |  | |  |  | |  |  | |  |  | |  |  | |
| Graphs | Communicate |
| Using your graphing calculator, sketch all three graphs using different colors/shading. | 1. What are the highest and lowest positions? Explain how you know. 2. When is the object moving up, down or not at all? Explain how you know. 3. When is the object speeding up and when is the object slowing down. How do you know?   **Assume** |